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(71)Applicant : YOKAI BUBBER IND UTD

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(72)Inventor: NISBIYAMA FAKA-BRO

(64) RUSSER COMPOSITION AND FUEL-TRANSPORT HOSE FOR AUTOMOBILE

(57) Abstract

PROBLEM TO BE SOLVED. To obtain a pubber composition which employs an acrylic rubber as a base material, has a good hiel-impermeability, amine nasistanca, sour gasaliga tesistance, heat resistance, low-temperature properties, or the like, and shows an excellent elections conductivity, and a fuel base for automobiles using this composition. SCLETICAL The rubber composition contains an alkaxy allest acrylate from 16 to 18%. acrylonibile as main monomer components of an acrylic rubber and is preferably prepared by . further compounding a predetermined amount of a plesticiser having a specific SP value and máleodisc weighi.

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CLAIMS

$\{Claim(s)\}$

[Cixion 1] The milder constituent with which it is the milder constinent which uses as a take natorial bedivalesceda el sudder ellegae, bend pend participageneri fuel evilomolos pe sul besu sedem ellegae. by comying our copolymerization of alterny alleys acrylate, 19 - 15% of the weight of acrylenitella (ACN), and the health formation sout nononcern on hitsel complenate.

[Claim II] The mibber coostinuent seconding to claim 1 characterized by said alkazy alkyl scrylate baing methacy stbyl nerylgte (MSA).

(Claim 3) A rather constinued given in elaboratain. Lie which the placacion whose \$22 (solability) pregramment endre is 8,8 in meen, hat whose instantant welght is 550 in like in charpiterised by statisfing nur 15-95 weighr section addition to the base meteral 1990 weight cention at said tubber constitution, or

(Claim 4) The rubber consists on according to plain 2 observer/exist by said planticizer corresponding to any one or none $\{(if\{i\}, \{i\})\}$.

- (1) SF value (d'a plasticizar le 9,0 octron).
- (2) The molecular weight of a planticizer is 450 or less.
- (3) The addition of a physician is 13 20 weight section to the basis material 100 weight section.
- [Claim 5] The nigher constituent according to claim 1 to 4 absorbinged by said tubbet consilluent. vorresponding to (5) and/or (6).
- (5) The volume resistivity value of a maker constituent is 148 or less observed.
- (6) This diagress of biardness (the disconneter type A of IES Kittlift) of a miliber consistingal is in this range of

[Chain 6] The automotive first impropertation have which is a layer uping a migher consistness apporting. to district to 5, and is characterized by corresponding to either of (7) - (9).

- (7) The exemplayer hose using the above resigned entries constituent.
- (E) The double layer hose which used the above-mentioned subber constituent for the linear layer and the mover layer through the collision year layer.
- (9) The double toyet base which used for the nater layer after predetermined robbacing radicals which were azcellené hi vsemberabillty oz osono resistance, wilhout minutny liprough á éplicifiq yatti láyer. while using the allowe associased colder constituent for the inter-layer

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| (Reduction on decore) | | | |

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DSTAULED DESCRIPTION

(Detailed Gescription of the Invention)

Pield of the trevention) About a ribbier constituent and an automotive fuel transportation hose, this invention is the basis which secured properties, such so a low temperature performance, by the still tonce detailed chapte and chapt configuration, and telefies in the automotive fuel transportation have no which the conductivity required of fuel improveshilly or a tixed automotive fuel hunsportation have was also satisfied, and the tubber consubtent used for this.

Description of the Prior Act. Also in domestic and therape, the co-called liftlets regulation to the U.S. and regulation of the fact transparency from the same automobile age A.D. 7800, and see confed out. As everyone knows, those the contribution of the fact transparation bose to the first perconstituty from an automobile is very high, the course domested in the fact transparation have.

(9003) Conventionally, to our convery, in the first base need for the so-called bigged lines, such as a first circuit in the first line of an entomobile, and a terms circuit, although the core-referred to as imag FKM (Suprotobber) which shows the first impermeability which was excellent in the inner layer in considerables of soor totors is progressing to the filter once have which thes a gospilen oil supply pout and a year tack, and the breathing pipe bine and evaporation base which constitute the so-called stack line Constal-purpose NSR (anytonitrile swine HENCOMO), and SHR and PVC (bland ninterial of NR) and PVC (polyviny) chloridal) are used.

[0008] The specification which used resin material, such as FKM, and polyantide resion a flavoresing for the itner layer as a filter near loss or an evaporation torus in the U.S. by which SHRRD regulation is almostly carried out, and, on the other band, used NBR-PVC, ECO (spendhanted)in coherch CSM (chiraconficiented polyablylene robber), son for the outer toyer is continued out.

(Froblem(s) in he Solved by the Invention) Bywever, by the specification of the above considered Eller topic hase in our country, a preatting pipe topic, and an evaporation base, the first impermeability which suit: the above-mentioned decrease regulation of an operation solvedule is not acquired.
[00%] porcover. If it be the filler neck base and the evaporation have which used FEM and read touchers for the inner layer [see (in the U.S.), although the first impermeability which does regulation be expossible, it carry out, and the tenentacture approach become complicated, in case adjusting processing with outer layer material take the load technical force and processing past and the base using SEM with the expensive FKM and fluorotesia be process into a bellows configuration from the residual

poverty—there has a difficulty of **.
[10007] furificationer, from absentingation of static electricity resulting from a flow of the gaseline at the time of all supply and car-hody vibration etc. A spack one as by nontact of the metal oil stopply gue of the time of all supply, and ignite to a gaseline. Atthough it is expected that possibility of saying will be pointed out nonventionally, conductivity will be given to a filter near hose and a breathing pipe base (it is set as the volume resistivity value of 108 or less ohm-out, and the above appointment electrification

http://www.wi.jpdl.ophpl.go.jp/ogi-ton/one, web_ogi_npe

will be prevented State electric resistance is large, PKM and resin material are essentially difficult to give sofficient conductibity

[0008] The invention-in-this-application person has thready proposed the automotive feel transportation have using the promising rebber constituent and this promising which as nNRR-PVC as a linear material to the trouble of such a conventional technique in the specification attacked to the application of highways Palent Application No. No. 182463 [11 to], and the specification attacked to the application of highways Palent Application No. No. 182463 [11 to].

1000% However, when the viewpoint was abanged further, with the litter neck base, there were needs which charge the fitting be about to a gas tank in the direction of the lower part, and since it was expected that the lower basic always contacts a gas dire, the need of taking sour gas time proof ashite it is consideration name out in meant years. Moreover, in an asspiration have, them are needs to the thermal resistance which was excultant since the part was used in an engine turns. Furthermore, since the online coronacted which may degrade rubber material is added by the gashine, connex-pipel nature is also required for it. About such a point, the tablest constituent which uses the above mentioned 19332, and PVC as a base material cannot not essayly be said to in perfectness.

10010) then, this invention makes it the technical problem which should be solved to offer the tubbor constituent which it not only concels the brothe of said conventional technique, but set it was alike and i and was higher excellent to points, such as our gosoline-prior tottors, thermal resistance, and antho-proof nature, and the autonomous high transportation has a sing this effectively. Although an invention in this application person was bardly conventionally used for the first oil-proof application, he observed the outylic tubber in which sour gasoline-proof nature, thermal maisteness, which proceed the discontinuity according. And a beader and the invention in this application were completed for their being a bold of the presentation which can solve the technical problem of this historium, and a continuation formula is the process of which the monomor presentation and combination formula of solve additive two considered.

(0.000)

(Mesns for Solving the Problem) (Configuration of the 1st invention) The configuration of the Lot invention floverities occording to claim 1) of this application for solving the obove assemblemed technical problem is a tablest constituent which uses as a base material acrylic rubbet used for an automotive feel transportation base, and said acrylic rubber is the rubbet constituent to which copolymerication of alkany alkyl acrylate, 10:-15% of the weight of acrylicabilite (ACM), and the bridge formation seat monomer of in butter complement is exceed out.

19032] (Configuration of the kief invention) The configuration of the 2011 invention (invention seconding to Asim 2) of this application for advant the otore-mentional problem problem is a nigher constitute whose alkaxy alkyl acrylate concerning said 1st invention is northery only acrylate (IdHA).

(19013) (Configuration of the 3rd invention) The configuration of the 3rd invention (invention according to chain 3) of this application for solving the above continued between problem is a ember consument with which 13-25 weight section addition of the plasticism whose SP (solubility parameter) rates is 8.2 or more, and whose molecular weight is 350 or tess is carried out to the base material 160 weight section at the military constituted concerning said 1st invention or 2nd townston.

(9004) (Configuration of the 4th invention) The configuration of the 4th invention (invention according to also 4) of this application for satisfing the above monthems technical problem to a tablec constituent with which the plasticizer concerning said that invention corresponds to see one to more (112(1)-(2)).

(1) SF value of a plashoiser is 2.0 acmon.

(2) The malacitlar weight of a plasticizer is 450 or toos.

(3) The addition of a plasticizer is 15 - 28 weight sention in the base material 100 weight sention. [OM 5] (Configuration of the 5th immedian) The configuration of the 5th invention (invention according to claim 5) of this application for solving the shove-mentioned technical problem is a subper constituent with which the ribber constituent concerning said 1st invention - the 40s by ention contribution is (5) and/or (6).

(b) The volume resistivity value of a milber constituent is 148 or less obtosers.

18) The degree of hardness (the durameter type A of IIS K6263) of a rubber constituent is in the range of 65–75 degrees.

[0016] (Configuration of the 6th loverdine) The nonfiguration of the 5th invention (invention seconding to state 6) of this application for solving the above-mendineed technical problem is the hose which regardle rabble constituent of a publication for either the 1st invention - the 5th invention, and is on automotive tool transportation have applicable to either of following (7) - (7).

(7) The monotayor have using the above-mantioned rubber constituoni.

(8) For deaths layer has which used the above-mentioned rubbet consistents for the liner layer and the outer layer through the splicing year tayer.

(9) The Coubie tayor hose which used for the outer layer other predstemmed rebber ingredients which were available to weathersblitty or exone resistance, withour coincides through a splitting yare tayer while using the spayer-mentioned rubber constituent for the unior layer.

10018] And if turned out that the feel impartorsability which was very excellent is shown while the vulcanization of aCM of a constant tole was certical our had held conglesh soor gasoline-proof nature, and thermal resistance or ordine-proof nature by research of the invention in this application person nabig the PRASEH gasoline for evaluation (gasoline for a radiographic economics) SHRD relationship in U.S. CARR)

[0019] By on the other hand introducing ACN which is a polar group, the glass transition point of scrylic tubber behance high, and aggression of a low temperature performance (flexibility of the hose of the time of ase in the archic ground which amones to about [-20 degrees] C) required as an automotive fast hose is expected. However, had permeability was also found by that it is effectively improvable by introducing alkney alkyl acrylate so touch as an scrylic ester component of unyfic tubber, monotoning a low magnificance performance.

100703 in the combine constituent concerning the 1st tovention, since 10 - 15% of the weight of ACN is introduced into the acrytic velocities which is a base instantial and although they are plate is used as an acrytic ester compensat, the validationant object of this subber constituent can realize the autstanting fuel improved billy and an affective line temperature performance, with the other gircoline-proof nature of acrytic tablest original. Thermal resistance tountained, etc.

10021) When ACN in acrylic tollier is less than 14 % of the weight, the first impermeability of a rubber considerant is incidentate, and when ACM in untyle subber exceeds 15 % of the weight, receivement of an affective line temperature performance becomes difficult. In using compensate other than allowy alloying acrylate an most as an acrylic ester compensate, a unitation is in the questionation effectiveness of a low temperature performance.

[0027] (An operation and effectiveness of the Indusvention) As the above mentioned siking siky? surplifies their is an anytic enter component, the length of the contribution to low temperature performance another method contribution of a colber constinuent to Mild, is desirable.

1902 If the apprecion and effectiveness of the 3rd invention) If turned out that a still toure effective law temperature performance is realizable, without checking the outstanding feel impertonability, when the plasticizer of the class chosen proper and an amount is blended to the enther constituent concerning the 1st invention or the 2stil invention. Memover, it also braned cut that sufficient conductivity for a rabber enositional can be given, securing the above-mentioned fuel importangular and a low temperature.

performance by blending the garbon block (CS) of the class choose proper in belance with a plasticistic, and no amount

(0023) in the 3rd promisen, such effectiveness is regioned to the scriptic number, which is a base material by carrying out 15-25 weight rection addition of the planticiner whose SF value is 8-2 or more and whose molecular weight is 550 or less to the base material 100 weight section.

[0023] SSI or less plasticizer has low viscosity at the time of low temperature, and molecular weight improves the few temperature performance of an acrylic militer constituent still more notabity. The plasticizer whose SP value is 8% or more caldent observables that improves follow a collissementation while dissolving good to acrylic rather. Therefore, a nubber constituent can also combine and realize still more offective high importantiality, securing the outstanding tow temperature performance. In addition, sufficient conductivity can also be continued and realized by blending carbon black (CBS) groper, securing these properties.

(1806) Incoming is carried out from both of compatibility I as apposed to 7 that 80 value of a phasinizer is less than 8.8.7 a base material 3, and there is a possibility that it may become impossible to contribute effective in the improvement to a low importance performance of a cubber constituent. When the materials weight of a plasticizer exceeds 550, there is a possibility that it may become impossible to conditione elicative to the improvement in a low temperature performance of a indian constituent too, from both of the time viscosity of low inequentative. If there is a possibility that the addition of a plasticizer and incompatibility necessary in the maximum about the bad influence to the first impermeability of a rubber constituent, there is a possibility of earlying out biseding series the limitation of compatibility.

[9027] (An apportion and effectiveness of the 4th invention) Like the 4th invention, when \$2 value of (1) planteteer is 2.0 or more, the exclosular weight of (2) planteteer is 48th or tens and the addition of (3) planteteer is 15 - 20 weight rection to the base majorial 100 weight rection, the above-mentioned operation and officeriveness of the 3rd invention can be realized especially good.

10028] (An operation and editionisms of the 5th invention) Like the 5th invention, the nighter constituent which uses the above monitoned acrylin rather as a base material can prevent affectively factor such as apark generating at the time of the oil supply based on electrohestical of andic electricity which described the submost resistivity value above from the good conductivity by it when combination of CH of a suitable class and an aparent considered as 108 or less above to hidifico, stoke the very like which uses today's elkery alkyl acrylate as the base time the inclination for an electric resistance value to be anoth from the first, is had the advantage said that a solop of the above volume resistivity values is easy.

[9079] Moreover, when purper nondination of a plasticizer of CIs considers as the targe where degree of bordense (the datameter type A of BS K625) of a rabber constituent is 55 - 75 degrees, an automotive first hose with the incidens of the softeness adiable for proclean use can be constituted. (As operation and effectiveness of the 6th toversion) The outher constituent concerning the 6st invention - the 6th toversion can also realize good conductivity, and shows still more sufficient weathershirty and ocone resistance white this equipped with the belance of the publications feel impermedially and the nationaling low temperature performance.

[19011] Therefore, while using for a inner layer the mondayer hose using (7) this robber conclusion, the double layer hose which used this rubber considered for the inner layer and the noisy layer though (8) splicing your layers, and (9) this rubber constituent like the 6th invention, the double tayer hose which ment on the outer layer other predetermined rubber ingredients which were excellent in weathershipted come resistance, without minding unusub a splitting sam layer can be constituted. The base of a new side or the degree of breedom of ingredient relection to the chose (9) may be decirable.
[500.1]

(Embediment of the favoutina) Plant, the gentalt of implementation of the 'not invention - the time provided is explained. When only belling "this invention" to below, the 1st invention - the tip invention are pointed not cultivatively. (0032) (Rubber considered). The cubber consultant consumering this invention uses as a base material sociyles orbber to which copulytronization of alkney alkyl acrylate. Hi - 15% of the weight of ACM, and the bridge formation seat monomer of an initial complement was carried out.

16033) Although which is necessary in for there to be an apoplal linelation about the amount of installation to the class and anytic rubber of a bridge formation seat commoner, and just to decide if uneded that it will be arbitrolice. The epexy bridge formation seat monomer usually used about very be cubber can be used about 1 to 3% of the weight preferably, for example. Moreover, to this case, about a volcanization argent, and the infration incidence vulcanization, proceeds vulcanization, etc. are possible, and a case meets to perform recordary vulcanization.

[9004] Although the class of alkays alkyl acrylate is not landed, large Milk or large EEA of the terrescriptor performance ametication effectiveness to a rubber constituent, and division Milk are desirable. Moreover, like [is the resent using Milk and EEA together so that the total quantity may become 80 - 90 % of the weight, for example], two or more kinds of alkays alkyl acrylate consists be used together so that the total quantity may become 80 - 90 % of the weight. As long as the shows-mannered fundamental occusions presentation is kept in acrylic rubber, amount concumitary use of the acrylic mater monomer of other types may be caused out a line.

f0035] It is desirable that £5-25 weight section addition of the planticites whose SP value to 8.8 as more and whose undecenter weight is 550 or test is content out to the base moterial 100 weight section like the 3rd invention to the outber constituted which uses the above appointment setylic rubber as a loos testeral. It is expecially desirable that it is 15 - 20 weight section about the addition of a plasticises that it is 350 or less about the molecular weight of a plasticises that it is 9.0 or more about 3P value of a plasticism to the base contacts 100 weight section.

10036] As a pluminizer used suitably, through effect ester system presidence, such as "ADEKA sizer RS-A07 (pade name)" by the Azahi electrification company and "ADEKA sizer RS-708 (trade asms) are ", pan be manufaced, for example, as long as it porresponds to the above monitoned conditions, it is not limited to these.

[0037] It is desirable to make the volume resistivity vides into 10% or less obnesse, and/or to, tasks the degree of hardness (the darometer type A of II8 E 6253) of a rabber constituent one the edge of 55 × 75 degrees by balance with addition of said plasticizer by blanding CB with this rabber constituent proper, on the other book. Although the haddings of CB cannot be uniformly specified since they change corresponding to balance with the addition of a plasticizer, the class of CB to be eased, they can be tooked into 20 × 100 weight section extent to the base material 100 weight section as an example. Although there is no special limitation in the class of CB, it is necessary to believe many of other physical properties in the range which does not worsen the electric conduction effectiveness of this base material. Momentum, nombination of electric conduction agents other than CB which does not worsen imperiorability is also possible.

[0078] Various well-known additives, such as a valcanizing agent, a indeplication evoclosites, a white bulking agent, and an additividant, can be thended with a nubber constituent besides the above. Though it does not add at generally adds to consideration of the offect on facil inspermentality, a low temperature perfections, conductivity, sic. which is not describe, as for white butking agents, then as a silica and a caterior carbonate, it is desirable to carry out to to 10 weight sections extend to the hash material 100 weight section.

[90.19] The above executioned subbor consistent which property antable as feel from inter-layer material, such as the above monitoned hiel impermeability, and atomic-constitution, condictivity Sonce it also has increal resistance, weatherability, and a property statable as hiel have under layer material rathed order resistance. The fundamental fiel transportation based as a corresponding the part of the artification of the automotive fiel transportation base which can be used as a corresponding five part of the artification of the automotive fiel management on these of a nominal per or double layer stroubure can be considered as vertical configurations like (7) - (9) of the 6th invention at artification. Moreover, the mean nomponent of artification can be further added to the base of those configurations. It is desirable to be constituted with the rather constituted which uses as a transmissional at least adoptic rubber which the innormal layer of a base requires for this invention.

in these cases

[0040] The above (7) in the base antiquation of - (9), the class of splicing year or the configuration. Familias of a collecting year layer in the case of familias a splicing year (actionize of the case of familias a splicing year (actionize of the case of familias and a middle rabber layer on) are one familias. Moreover, as "other producement of their ingredients accepted to weatherediffy or occupances" in (9), the bland tubber (NE) of epichicrotydran subber (BCO), chlorosofficiated polyabylane rabber (CSM), acceptability-baladiene rabber / vinyl chloride bland tubber (NIR PVC), acceptability-baladiene propylene-diene copolymer rabber of 3 year can be metalioned.

(0044) Authorigh it can ask up animably about the thick configuration of the inner layer of a base, and in outer layer corresponding to the total thickness of a feets, the level of fuel imperioristility needed, and many engine performance of outers of a base, let inner layers once preferoitly be 1/2 or more thickness of the base total thickness.

[0082] In annual edges of an action of the transportation base, the used actrosion-modifing method and the injection is infecting another are available. Moreover, there is an advantage testited in a that the tubbet existing on the invention is equipped with sufficient intermediation permanential intermediate between and it can perform the so-called pan valume inferencession of a not mandrel own if it is the first base of a major diameter.

19043] Although the notionedire feel transportation have enquerious the 6th meention can be used for the votions applications as a fuel base without figuration, it is especially suitable for the notice a filter neck base, the breaking pipe hase of a vapar line, of an evaparation have.
[6044]

(fixample) (Combination formula of an unvalentized subject constituent) to under to prepare the test piece for evaluation conferming each example of examples 3-7 and the examples 4-10 of a comparison commerced to Table 4-3 of a last, respectively. The following back combination 2 whose following back combination 1, with a 1998, and PVC whose acrylic rubber is a polymer are polymers, and the following back combination 3 whose FEM is a polymer are followed. And in the predefermined example shown is each table, the white hulking again was included and each constituent formula of the constituent concerning each example was set up.

10045/Basic combination 1 polymer 100 weight sections steam seid One weight section anticaldant One weight section black (CB) A variate plasticient Variate processing sid One weight section volumenting opent votion voluments assisted Transland basic nombination 1 is a iting applicable to examples 1-7 and the examples 5-10 of a comparison. **** — with the obove mentioned "polymer" White using the scriptic extensive 5-10 of a comparison. **** — with the obove mentioned "polymer" White using the scriptic extensive 5-10 of a comparison of the applicable column of each table, and accounts, the above tubber which is as the amount of ACP showing an applicable column to polymer out 10046) floor combination 2 polymer A 100 weight sections time exist five weight sections steam acid One weight section atdusticate Two weight sections cabon black (CB) A variate plasticizer Variate suffer 0.5 weight sections thin an expectation successful a weight sections.

[0047] This basic combinations 2 corresponds to the examples 2-4 of a comparison, and the shops-merdianed "polymens" is HBE whose amount of ACN is 50 % of the weight, BBB and PVC which themsed 10% of the weight of the weight of BVC in the example 3 of a comparison in NBB whose amount of ACN is 46 % of the weight of FVC in the example 4 of a comparison to NBB, whose amount of ACD is 36 % of the weight in the example 2 of a comparison, [0048] Sesio combination 3 polymer 100 weight sections magnesium oxide Three weight sections colours by downed Six weight sections calcium by downed Six weight sections exchangibles (CB) 15 weight sections.

(9849) This basic combination I corresponds to the example 1 of a comparison, and the above-monitoned "polymer" is "flow rel FESTIPQ (brade name)" by Samikomo 388 which is the polymer independing again totame) flouremables (FEM) whose flourist continue is 69%.

[19030] Mexi, although each table is explained collectively as a plasticizer — example 1-3, 7, the examples 2 and 3 of a comparison, and 5- the "ADREA sizer RS 107 (trade exemply by Asalis Dooka

Koggo K.E. to 7 and 10 In the example 6, the "ADEKA short BS 705 (mode vame)" by Asabi Ognek Eoggo E.K. DOA was used for the example 8 of a comparison for DOF for the example 9 of a comparison at the example 4 of a comparison in the phi (weight number of capies per parymer 100 weight section) and which shows the "ADEKA sixty R5. 735 (trade name)" by Arshi Decko Kogyo K.K. in a table, respectively. SF value and toolecular weight of these playleicurs are also collectively shown to a table.

[6081] Next, at C8, the "Imanese his tack N336 (bade notion)" by Shever Cabot Corp. was need as "PHE" as "HAP" according to the outsion of the earbon grade of inon Naka in the pier unit which shows "the C suite S (trade done)" by Taket Carbon Co., Unit as "SEF" for "the C strike SO (trade name)" by Taket Carbon Co., Lat. in a which respectively.

19852] Sucthismeen, as the exaconte of a comparison is shown in a table, it is filence Yalo as "tale". Topic resurration of the closine "the microse THON vapor (bade name)" was carried out.

[6033] Memoret, although the batic continuous 1 - the basic combination I are explained collegively As the authoridant of the basic combination I The Juan guard AdS (trade name)" made from Unitaryal Chem As an anticuldant of the basic combination I, "GZOMISM 3C (trade name)" or "the non-flex time RD (bade name)" by the eigherate charactry company As processing aid of the basic conditionism I, "coulisse toll 870 (trade name)" by the Essa petrolema commonly As a reagnesion exide of the basic combination I, "Cai-I (trade name)" by the Control chamistry company was used for "constructed MAGN 8130 (trade name)" by the constructed chamistry company was used for "constructed MAGN 8130 (trade name)" by the constructed chamistry company as a colored bydroxide of the basic combination 3, respectively.

10054) Purthermore, although the substaining agent kind concerning the basic combination 1 is shown in Table 3 - 3 "CN-75 (made nature)" by DENKS KACAKH KOSYO K.K., whose "condende" is an indicator tystem substaining agent in here, Basing used "FAI; kneck ÅIOS (made nature)" by the Cuchi Eblicke Cherolast industrial company which is this integration accolerator, or "EM-ARC/IF needle trade money" by Kan Corp. is shown. "Ferualde" shows that the "pur hera V-40 (trade nature)" by Nippas OH & San Co., Ltd. which is a peroxide system integrating agent, or "the propositionin (trade nature)" by the elaboride abundance company was used. As a thincain system volcanization-accolerator agent endocroting the basic combination 2, company "Noncelet CZ-6 (trade nature)" was used as a softenianide system information accelerator using Outhi Shinke Chemical "Noceelet III-O (hade nature)."

TOPSITTHE window concutance which is not submitted concerning each above mentioned example is knowled with a Banbury mixer and an opening tell accoming to the complication formula concurring each example. (Propagation of the test trick for evaluation) these rubber constituents — but bless retermination (an example 5 and the example 4 of a consparison — the press care for 166-degreeC: 45 coinness —) of 16,160 degree Can honer of passe case for 160-degreeCx 45 minutes. The examples 2-4 of a comparison were fauricated with the press care for 150-degreeCx 10 minutes in the shape of a cheef by the fluckness of know, and the fest piech for evaluation of the shape of a sheet noncerning each example was prepared.

19056) (Evaluation of whiel physical properties) the text pose for evaluation encounting each example - using - .08 K - ecoenting to 62.51 and 62.53, (MPc), clongation (M), and hardense (durameter type A) were evaluated in tension strength as initial physical properties. The result is shown in Table 1 - 3. About these initial physical properties, 10.0 or more MPcs and clongation are considered that it is derivatin that hardense (He) is 50-75 for tension strength 250% or more.

[0057] (livelabline of gesome personability) CoP using the so-called "Fact C" granton using the text piece for evaluation concerning each example—the transcription coefficient (mp-mo/cm2/day) was the arrangle for day in estimated gasoline permedidity. It is the approach that one side of a test piece in softened to as being interested in a gasoline here by the "COP triathods" holding a gasoline in the fixing of a predeterminal cup configuration, scaling opening (opening area Femil) of a cup with the test piece for evaluation of the shape of a sheet of discharge (mm), and making the whole fixing do a triadatand. [0058] Appetitically it is in the condition which held the Other grantine to the cup as pretreatment first 40-degree interestion [mm side] for CX7 days is perfected, and it is once its whole after [100al new

gasoline no vous account and cap I every I weight Wil about this gasoline, (mg) is measured and placed. News, 40 degree immersion I one side I for Call days is professed in this condition; and it is every while cap weight. Wi just be find that, (mg) is incastived and said testionission equificient is computed by the formule called testionission coefficient — (CWI) wil/31. Although the computed transmission coefficient that it coefficient is shown in each table, it is thought that it is desirable as this transmission coefficient that it is 40 or table.

[0058] (Evaluation of a law imperature performance) About the tent piece for evaluation concenting each matriple shown in Fable 1 - 3, it is MS. By the cold shock endritthment trial specified to KELS1, tow-imperature-coholitement temperature (degiseC) was measured and the result was shown in Fable 1 - 3. It is thought that it is decirated as low-temperature-conference; temperature that it is below-2th-degree().

[1966] (Evaluation of volume tesishvily) Alken the test place for avaluation concerning each example shows in Value 1 - 3, it is 118. According to 1,699 I, the test method which set applied voltage to 1,1699 estimated the value fractionity value (plus-non), and the result was shown in Table 1 - 3 with it. It is thought that it is desirable as a value maintainty value that they are 108 or less often can.

[006] (Bhat-resistion evaluation) About the test place for evaluation concerning each example shown in Table 1-3, the clargation change after 120-degree transposed of Cc168 hours (%) was measured, and the result was shown in Table 1-3. It is thought that it is desirable as no change that it is less than 30%.

[0007] (Evaluation of feel oil-prouf nature) About the jest puren for evaluation concerning each example above in Table 1 - 1, the volume change (%) after being immersed in the so-called "Fault" on the conditions of 40 degreets 48 bours was messured, and the result was shown in Table 1 - 1. It is thought that it is desirable as a volume change factor is 30% or less.

[1906] (Evolution of some gos-priori nature) About the first piece after earlying out two-eyets innorming on the conditions of 40-degree [8, 70 hours at the suove "Fee] (2) which contains 2.5% of the weight of hony! peroxide about the test piece for evolution concerning each example shown in Table 1 - 3, it evoluted whether there would be any identicalities, such as hardering and softening, and the result was shown in Table 1 - 3. That that "O K." was written written abnormality nothing and "1906 I that I" voice ingother the continues of the abnormality with obnormalities. The thing with desirable it being "with no abnormalities" campet to overemptosized.

[0064] (Evaluation of amino-proof cabite) About the text piece after helog immersed in the above "EnelC" containing the dudics texthylene diamins of 0.005 mole/L on the conditions of 86 degree(x 72 town about the test piece for evaluation concerning each example shown in Table 1 - 3, it makeded whether there would be any automatities, such as burdening and containing, and the result was shown in Table 1 - 3. That that "CCK" was written wrote abnormality texthing and "PI3 (that I' wrote together the nominant of the abnormality with abnormalities. The thing with desirable a being "with no alternabilities" caused be gynaemphanized.

[9065] (firsteeding of a reack, sod, of course, this [33] is desirable.

[9986] (Choice evaluations) About the test piece on evaluation concerning each evacuate shown in Table 1-3, the condition on the femiliable of a sheer offer leaving it on one week in ordinary temperature was observed offer voluntization, and the existence of bleeding was investigated. That in which the fixing withinsity therefore ites "O.K." and theeding was indicated to the table at "MG."

[Out 7] Microuser, it judged symbolically whether there would be any problem in workelility by Banbury and roll workevilly, and trace extranon nature about the fest piece for evaluation concurring each maniple shown to Table 1 - 3. That in which what due for have a problem to workebility has

"O.K." and a problem was immediated in the table as "NO."

Paule U

| 12 460 1 (3) | | | | | | | |
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| 22.23.23.2272 | 8.3 | 888 | N.S.A. | 888 | MEA | MEA | 85% |
| 508 8 | 1 | 13 | 3.8 | 14 | | 1.8 | 133 |
| 838338 | \$\$ \$\psi\$ | 133 1 - 3 | 100 | (3) 1-3 | 1378 38 | 18 Y 4 | 338 3-3 |
| 200838 | \$ 3 3 4 | 4 3 4 | 131 | 434 | 454 | 289 | 484 |
| 380 838 | 8.2 | 9.2 | Q.,; | 8.8 | 8.2 | 2.5 | 8.3 |
| 330 (100 (10)) | | 1 1 2 | 13 | 3.8 | 1 1 | 13 | 3.5 |
| 19.84 | 258 | 18. | 3.52 | 165 | 888 | 888 | 8 6 |
| 38 MM 800 | 86 | 80 | 4.3 | []38 | 8.0 | 8.0 | 3.8 |
| 3000 300000 | 17.8 | (3.3) | 12.3 | 11.5 | (0.8 | 11.3 | 12.8 |
| 386 (33 | 300 | 338 | 589 | (338 | - K\$ | .880 | 389 |
| | 33 | 22 | . 88 | 22 | 59 | 12 | 32 |
| Marie Marie (1971) | 3,8 | 33.8 | 88.3 | 12.3 | 35.8 | \$2.3 | 32.5 |
| (00) (00) (00) | -23 | -33 | -38 | -28 | 437 | -31 | 187 |
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| 860-86 | ON: | 38 | 0.8 | SX | 68 | ÓΚ | S.S. |
| 8018 1/8 | ők. | ðκ | 0x | 0.8 | ÇĶ. | 38 | 0.8 |
| 35 / A | , K | 3.8 | 98 | 38 | 98 | 68 | |
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[0689]-[788689]-

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[8676] [Table 3]

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